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...ment at their request, and to the U.S. geochemical community and the nation at large on matters concerning geochemistry.

of Geology and Geophysics, University of Minnesota, Minneapolis, Minnesota 55455 (telephone: 612-873-4186).

tion; however, they weighed alternatives based only on the scientific merits of drilling and did not look at crucial studies as a whole or look at budget projections.

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to account the spatial variations of equilibrium
conditions (density and magnetic field) and looking for
sustained eigenmodes. Some consequences, of the derived
stability of this model configuration, are drawn with
regard to observed prominence phenomena.
Geophy. Res., 1982, Paper 2A117

Swins is between 100 and 150% for a strain rate of 10⁻² s⁻¹. The maximum lies around 400 to 600%. At higher strain rates than this, very large extension may occur before cooling significantly affects the strength of the lithosphere. This model accords well with the constraints available from the continental margin of the North Atlantic.

to account for the spatial variations of equilibrium quantities (density and magnetic field) and looking for bounded eigenmodes. Some consequences, of the derived stability of this model configuration, are drawn with regards to observed phenomena phenomena.

J. Geophys. Res., 85, Paper 2A117

24. The maximum lies around 420 to 500°C. At our strata rates than this, very large extensions in the lithosphere. This model accounts well with the strata available from the continents: Atlantic North Atlantic.

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geometry produced by this process is com-
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Characteristic	Challenger	Explorer	Seidon 472*
Length	123 m	190 m	145 m
Breadth	20 m	36 m	22 m
Operating draft	7 m	9 m	8 m
Operating displacement	9,800 tonnes	40,500 tonnes	15,100 tonnes
Speed	22 km h ⁻¹	19 km h ⁻¹	26 km h ⁻¹
Crew capacity	45	55	55
Scientific crew capacity	20	50	50
Quarters	74	150	116
Livability rating	poor	excellent	fair-good
Drill string capacity	7,100 m	10,200 m	9,200 m
Heave compensation	good	good	good
Mud treatment systems	limited	good	good
Coring storage	limited	unlimited	good
Riser and blow-out prevention	none	maybe someday*	1,800 m
Weather limits for drilling	unknown, but less than other ships	83 km h ⁻¹ wind, 3/8 m seas, 4.5 km h ⁻¹ current	83 km h ⁻¹ wind, 3/8 m seas, 4.5 km h ⁻¹ current
Sea keeping capacity	good	excellent	good
High latitude capability	fair	good	fair-good
Laboratory space	426 m ²	1,810 m ²	852 m ²

*Source: NSF Office of Scientific Ocean Drilling.

*For comparative purposes only; a request for proposals would be issued for bidding from commercial drilling companies if the administration acts on the ad hoc group's recommendation.

*The *Glomar Explorer* has the capacity to carry 4,000 m of riser string.

• advise, within the framework of these priorities, the relative merits of the *Glomar Challenger*, the *Glomar Explorer*, and a third drilling platform.

• consider what mix of research programs and associated facilities, within constrained budgets, will best address the scientific opportunities in crustal research.

The final report of the group is expected within two months.

The members of the NSF Ad Hoc Advisory Group on Crustal Studies are Donald L. Anderson (Geosciences Department, California Institute of Technology); W. Edward Kingman (drilling engineer, Shell Oil Company); Kevin C. Burke (Department of Geological Sciences, State University of New York at Albany); William R. Dickinson (Department of Geosciences, University of Arizona); Charles L. Drake (Department of Earth Sciences, Dartmouth College); Alvin R. Kohn (Cities Service Company, Tulsa, Okla.); John Fisher (Department of Geology, University of Illinois, Urbana); John Ingebritsen (Department of Geological Sciences, Brown University); John A. Kusurs (School of Oceanography, University of Rhode Island).

Wet January for Nation's Streams

The nation's streamflow picture was generally wetter than usual in January, except in the East, according to a clerk by the U.S. Geological Survey (USGS), Department of the Interior.

USGS hydrologists said that more than 80% of the key index gaging stations across the country reported average or above-average streamflow during January. Of the nation's reporting below average streamflow, most were in the eastern part of the country.

With small, dry areas reported in Kansas, Nebraska, Texas, and Ohio. In the eastern United States—from Maine south to Florida and west to Pennsylvania and Tennessee—21 of the 65 key index stations reported streamflow that was much below average for the month, within the lowest 25% of record.

Reflecting the generally wet picture across the country, combined flow of the nation's "Big Five" rivers—Mississippi, St. Lawrence, Columbia, Missouri, and Ohio—averaged 1.621 billion gallons a day (b.g.d.), 40% above average for the month. The combined flow is down about 15% from the December average, as major floods receded in Illinois, Arkansas, Louisiana, Missouri, and Mississippi. January was the eighth straight month that the combined flow of the "Big Five" was above average.

Since the "Big Five" rivers drain more than half of the contiguous United States, USGS hydrologists use their flow as a convenient guide to the condition of the nation's water resources.

BIG FIVE: Individual January flows—Mississippi River near Vicksburg, Miss., 677 b.g.d., 66 percent above average, but 9 percent below December; St. Lawrence River near Massena, N.Y., 150 b.g.d., within 1 percent of average, but down 14 percent from last month; Ohio River at Louisville, Ky., 61 b.g.d., 38 percent below average, down 39 percent from December; Missouri River at Hannibal, Mo., 51 b.g.d., 136 percent above average, but still down 57 percent from the previous month; and the Columbia River at The Dalles, Ore., 82 b.g.d., 47 percent above average and 16 percent above December.

Forum

The Uses of Color

Color graphics in AGU publications may be valuable aids to communication, but care will have to be taken to assure that they really contain extra information instead of the same old information in a seven-page package. I am anxious to tell you, for example, why the essentially useless, colorful, yellow and white label color image on the cover of *EOS*, December 7, 1982, contains more information than a good black and white version would.

Further, any graphical display, whether in color or not, ought to be described in comprehensible terms. The caption to the cover of *EOS* was, I found, confusing in the original version in *Geophysical Research Letters* (GRL) two months ago. Let me be a translator for the interested reader. The caption to the cover of *EOS* is all the more confusing for lack of context and illustrates the dangers of accepting without scrutiny.

The theta image of the earth's aurora seen from space is a striking and beautiful discovery, and its features are to be contemplated. But they should pay the attention as should be all to the condition meaning of words. Geophysicists should strive to write so clearly that even when their words are filled out of context for the education of the masses, they are still meaningful. *EOS* readers should have to go to great lengths to find significance in what is otherwise merely a pretty picture.

GRL, original vol. 9, p. 1047: The apparent position of the D1-2 orbit corresponds to the central vertical sun line of the image.

Translation: The track of the D1-2 orbit represented by the time shown in this Plate is shown in Figure 1.

Note also that the sentence in the GRL caption beginning "Spacecraft motion belongs to Figure 1 and Plate 1, not Plate 2."

S. A. Morse

Department of Geology and Geography
University of Massachusetts

Remembering Earlier Days

A Letter to AGU:

My connection with AGU began in 1939 following a regional seminar and meetings in Oklahoma City. The late Dr. Nelson Sayer sponsored my membership, just as I was embarking on a career in water resources investigation. Then, after about 4 years with the Texas Board of Water Engineers, I served 32 years with the U.S. Geological Survey in hydrological and geophysical studies in several states and at national headquarters as a staff scientist and administrator before retirement in 1973, after which I've done some consulting work. A long association with the growth and development of geophysics has allowed me to see the dynamic part AGU played in the growth and development.

Today, as a retired earth scientist, I want to make a modest contribution to the campaign to undergird the line AGU investments. These investments, in addition to a well-located building for permanent headquarters and central library, include the vast AGU benefits to geophysicists in federal service, the academic geophysical community, and certain areas in private business.

AGU investments and benefits to our very large body of scientists include provision of high-quality forums and journals for exchange of geophysical information. It is my hope that response to the 5-year AGU-GIFT drive will put the drive over the top. Such gifts are sound investments.

Joseph W. Lang

Note: The above letter came from one of AGU's life members, whose contribution gives him the status of individual Supporting Member.

A Life Supporting Member recently wrote to us that although raising money is not his bag, he feels we are doing some good and gladly supports our work. His reason for supporting us is that 20 years ago AGU supported the early development of isotope geology and at that time the Union never asked for anything. Now he feels that because he benefited from AGU's earlier initiatives, his present support seems reasonable.

Have you remembered what AGU has done for you lately or perhaps even long ago?

Charles A. Whitcomb

Errol G. Drost
Cochairmen, GIFT Steering Committee

New Publications

Items listed in New Publications can be ordered directly from the publisher; they are not available through AGU.

Hydrothermal Chemistry of Zeolites, R. M. Barrer, Academic, New York, ix + 360 pp., 1982, \$37.50.

Satellites of Jupiter, D. Morrison (ed.), with the assistance of Mildred Shapley Mathews, University of Arizona Press, Tucson, ix + 972 pp., 1982, \$49.50.

Classified

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POSITIONS AVAILABLE

Assistant Research Oceanographer/STO. The Ocean Research Division of Scripps Institution of Oceanography invites physical oceanographers to apply for a position at Assistant Research Oceanographer, the research equivalent of Assistant Professor (Ph.D. in physical sciences or equivalent degree required). Candidates must have strong background in applied mathematics and fluid dynamics; strong interest in ocean dynamics; and proven research and publication record in physical oceanography. This position is funded through ONR contract for two years. Appointment beyond two years is provisional on candidate obtaining extramural support. It is expected that the majority of research effort during the two years will be devoted to the theory and analysis of data on Kuroshio variability. Salary range is \$22,900-\$35,800 commensurate with qualifications. Position start date is approximately 4/1/83. Please send resume and at least three references to: Dr. Russ Davis, Chairman, Ocean Research Division, 4080, Scripps Institution of Oceanography (E), La Jolla, CA 92037 by March 15, 1983. For additional information about the position contact Dr. Peter Miller (619) 452-4100. The University of California, San Diego is an Equal Opportunity/Affirmative Action Employer.

Postdoctoral Research Associate/Mineralogy. Applications are invited for research in high-resolution analytical transmission electron microscopy of minerals and their analogues. Experience in crystallography, materials science, and fluid inclusion analysis is desirable. Send resume (including transcript), statement of research interests, and names of three references to: Dr. P. R. Buseck, Department of Geological Sciences, Arizona State University, Tempe, AZ 85287. ASU is an EEO/AA employer.

EOS

Transactions, American Geophysical Union
The Weekly Newspaper of Geophysics

Send double-spaced manuscripts (four copies) to: *EOS* at the address below or send them directly to one of the editors with a copy to AGU.

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For advertising information, contact Robin E. Little, advertising coordinator, 202-462-0903.

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Subscription price to members is included in annual dues (\$20.00 per year). Information on institutional subscriptions is available on request. Second-class postage paid at Washington, D.C., and at additional mailing offices. *EOS*, Transactions, American Geophysical Union (ISSN 0098-3841) is published weekly by

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Cover: Small drag fold in siliceous pyrite of the Permian-Triassic boundary, River Schist north of the Conner Creek fault, NE Oregon. The Burnt River Schist originated by intense deformation of cherts along a major suture between Jurassic arc-derived sediments and Permian-Triassic oceanic terrane. Photograph is a 20% enlargement of subject. (Photo courtesy of Ellen D. Mullen, Department of Geology, Oregon State University.)

Conference

FUNDAMENTAL MAGNETOSPHERIC PROCESSES IN THE PLASMAPAUSE REGION

October 25-27, 1983

The University of Alabama in Huntsville
and
NASA/Marshall Space Flight Center
Huntsville, Alabama

Conveners: J. L. Horwitz and J. L. Green

This conference is designed for experimentalists and theorists concerned with wave and plasma processes in the vicinity of the plasmapause. Appropriate topics for papers to be presented will include: wave phenomena associated with the plasmapause; sources and loss of cold and warm plasmas near the plasmapause; plasmapause filling; identification, structure, location and dynamics of the plasmapause; relationship of plasmapause to other important magnetospheric boundaries. Attendance will be limited. Persons wishing to present papers should send an abstract (use convention for AGU meeting abstracts) to one of the conveners by July 9, 1983. Information on hotel accommodations will be provided on request.

Dr. J. L. Horwitz
Department of Physics
The University of Alabama
in Huntsville
Huntsville, AL 35899
205/895-6276/
453-0505.

Dr. J. L. Green
Magnetospheric Physics Branch/ES53
Space Sciences Laboratory
Marshall Space Flight Center
MSFC, AL 35812
205/453-0028.

Scholarly nature, are required. Salaries are competitive. Closing date for applications is March 8, 1983. Interviews must be held on March 10 and April 1. Applications should be sent to: Dr. J. L. Horwitz, Department of Physics, University of Alabama in Huntsville, Huntsville, AL 35899. The National Postgraduate School is an Equal Opportunity/Affirmative Action Employer.

Geophysicist/University of Montana. The Geology Department of the University of Montana is in the process of filling a tenure track position in the area of geophysics beginning Sept. 1983. Teaching and research responsibilities at the undergraduate and graduate levels. Research interests should include solid earth geophysics and geology. Applicants should have a Ph.D. degree or equivalent and a strong background in geophysics and geology. The applicant should arrange to have at least three letters of recommendation sent to: Arnold J. Silverman, Chairman, Department of Geology, University of Montana, Missoula, MT 59812.

The deadline for applications is March 15, 1983. The University of Montana is an affirmative action/equal opportunity employer.

Postdoctoral Position/Seismology. Postdoctoral support in seismology is tentatively available for up to a 24-month period. Seeking a recent Ph.D. who is interested in regional seismic wave/surface wave propagation. Applications should be sent to: Dr. Robert Herrmann, Department of Earth & Atmospheric Sciences, St. Louis University, Box 8089, St. Louis, MO 63136, 314-658-3120.

St. Louis University is an affirmative action/equal opportunity employer.

Research Associate. Applications are invited for a postdoctoral research associate in the field of plasma astrophysics, space plasma physics, and cosmic ray physics. The successful applicant will be expected to spend a substantial part of his or her time working on problems in solar or interplanetary physics. Appointments will begin in summer 1983 in June. Applicants should possess a recent acquired Ph.D. in a relevant area of physics, astronomy, or planetary science.

Inquiries should be addressed to: Dr. J. R. Krumpholtz, Prof. E. H. Levy, Department of Planetary Sciences, Lunar and Planetary Laboratory, University of Arizona, Tucson 85721.

Applicants should be accompanied by a resume, complete bibliography, and at least two letters of recommendation from persons who are well-qualified with the applicant's background and potential. All material should be received by April 15, 1983. An Equal Opportunity/Affirmative Action Employer.

Research Associate/Upper Atmospheric Physics. The National Research Council (Canada) is conducting a multidisciplinary ground-based research facility called CANOPUS. One part of CANOPUS is a Data Analysis Network which will provide interactive access to the CANOPUS data by scientists across Canada. A research associate position exists for a person who would be associated with implementing and operating this network. This position will allow some independent research on aspects of the CANOPUS data and the holder of the position would be encouraged to undertake such research.

The position requires a Ph.D. in some aspect of upper atmospheric physics (preferably ground-based and extensive computer experience. Any related experience in computer networking would be an advantage. The initial salary will be in the range from \$24,000 to \$27,000 per year, depending on experience. The appointment will be initially made for two years and commences as soon as possible.

Send resumes and the names of three referees to: Professor J. A. Koehler, Institute of Space and Atmospheric Studies, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0 Canada.

SENIOR RESEARCH SCIENTIST/TRAINING MANAGEMENT POSITION International Ground Water Modeling Center

A position will become available July 1, 1983 for a Senior Geohydrologist to direct the International Ground Water Modeling Center (IGWMC) at Butler University's Holcomb Research Institute in Indianapolis, Indiana, USA. The IGWMC is an international information and training center for ground water modeling courses provides assistance in workshops and seminars, operates a clearinghouse for ground water models, and publishes the *Ground Water Modeling Newsletter*. Negotiations are currently underway to initiate IGWMC activities in cooperation with the Dutch research organization TNO by opening an office in Delft, The Netherlands, in late 1983. An international policy group, assisted by an international advisory committee, provides oversight to IGWMC.

The successful applicant will have a background in ground water hydrology preferably at the Ph.D. level. He or she must possess a minimum of five years experience in conducting studies of quantity and quality of ground water resources and should be acquainted with theory and application of modern ground water modeling techniques. Experience in project management and training/adaptation is preferred.

As the senior management person in the HRI-IGWMC office, the incumbent will manage the daily activities of the Indianapolis office of IGWMC. Major duties of the position include planning and implementing IGWMC activities in the North, Central, and South American region, facilitating information tasks of the center, which include initializing and maintaining contacts with ground water modelers, researchers, field technicians and water resource managers. Incumbent will also provide oversight of and participation in the Center's training programs and all technical tasks for the Center. Person will serve as general ground water specialist for other HRI environmental research programs.

Persons interested in applying for this position should, before March 31, 1983, send curriculum vitae and names of three professional references to:

Darrell R. Fishal
Business Manager
Holcomb Research Institute
Butler University
Indianapolis, Indiana 46208

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Books

Climate Variations and Variability: Facts and Theories

A. Berger (Ed.), NATO Adv. Study Inst. Ser., Ser. C, Math and Phys. Sci., vol. 72, O. Reidel, Hingham, Mass., xvi + 795 pp., 1981.

Reviewed by C. Nicolis

Ever since the realization, about 20 years ago, that the mild and predictable climate of the first half of our century was an anomaly within the climate's long and turbulent history, specialists, policy makers, and the general public feel increasingly concerned about the possible impacts of climatic change on an

overpopulated and energy-thirsty society. Yet for all its importance, the share of this field in modern scientific literature is surprisingly slim. In this respect, the present book, which compiles the lectures given at the first International School of Climatology organized under the auspices of Ettore Majorana Center and NATO at Ence, Italy, in March 1980 constitutes a welcome contribution.

A number of monographs and proceedings volumes on various aspects of climate are available. There is no doubt, however, that the present contribution gives a more comprehensive view of the subject, both broader and deeper than the previously available reviews.

The book is organized into seven parts. (1) Mathematical and Physical Basis of Climate (five lectures), in which a general survey of the principal aspects of climatic change and of some of the mechanisms involved is provided.

(2) Mathematical Techniques in Climate Reconstruction and Data Banks (three lectures), in which information is supplied on the statistical methods and other tools used to analyze data, in view of climatic reconstruction.

(3) Facts: Reconstruction of Past Climates (16 lectures), the longest of all parts. Here, long and intermediate scale climatic changes are described as they appear in the light of experimental work using oxygen isotopes, ice core, and other techniques. Moreover, a number of case studies is presented on recent climatic anomalies, and the role of atmospheric circulation and air-sea interactions is examined in this context.

(4) Theories of Climatic Variations and Their Modeling (nine lectures). Possible factors at the origin of climatic change are analyzed, and numerous suggestions are made on the role of internal mechanisms (feedbacks etc.) and external forcings (orbital variations, solar output, etc.). Moreover, a number of mathematical models are developed, which are suitable for the analysis of different situations arising in the context of climatic change. Special emphasis is laid on energy-balance (Gill) and statistical (Hasselmann) models, but a general overview of other approaches including general circulation models is provided in a chapter by Gates.

(5) Man's Impact on Climate (six lectures). Most of this part is devoted to the carbon cycle and the CO₂ problem. Some general considerations on air pollution are also presented.

(6) Climate Impacts on Man (two lectures). This short part deals with the impact of climatic variability on agricultural and other resources, as well as on economy.

ISBN 0-87990-206-5

Climatic Changes

M.I. Budyko
English Trans., R. Zohar
English Trans., editor, L. Levin (1977)

The application of physical climatology in studying climatic changes is the main problem presented in this book.

Budyko also deals with the effect of climatic changes on biological processes including the evolution of living organisms. He presents the need to develop methods, and offers suggestions, for controlling climate modifications.

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Experimental & Solar Physicists

Lockheed Missiles and Space Company's Research Laboratory in Palo Alto, CA, has openings for a SOLAR PHYSICIST and an EXPERIMENTAL OPTICAL AERONOMY PHYSICIST in our Space Sciences Laboratory. These Labs are located on the beautiful San Francisco Peninsula just minutes south of Stanford University.

Solar Physicist

The successful applicant will be expected to conduct and publish original research on solar flares as a member of the Lockheed X-Ray Polychromator (XRP) team. This research WILL make use of existing XRP and related data or new observations to be acquired following the repair of the Solar Maximum Mission (SMM) in 1984. As an active member of the XRP team, this physicist will participate in planning and executing the observing program of the renewed XRP and SMM.

This position requires a PhD degree or its equivalent plus experience in solar research. A background in plasma physics is highly desirable.

Both of these appointments and salary levels will be commensurate with the credentials of the person selected. Qualified and interested candidates should send their resumes, references and list of publications to: LMSC, Professional Employment, Dept. 600-0215, P.O. Box 504, Sunnyvale, CA 94086. Lockheed is an equal opportunity, affirmative action employer. U.S. CITIZENSHIP IS REQUIRED.

Lockheed Missiles & Space Company

Atmospheric Scientist/Programmer/University of Nevada System. The Desert Research Institute is seeking an Atmospheric Scientist/Programmer to join the Atmospheric Sciences Center. The individual will be responsible for the design, analysis, and interpretation of aircraft cloud physics data and data collected with radar, radiometer, and lidar remote sensing instruments in cloud physics and weather modification research projects. Initial emphasis will be on developing computer-generated graphics data display capabilities in DRP. Emphasis will then shift to data analysis and interpretation and publication of results. Desirable qualifications include a Ph.D. in atmospheric sciences with 2 to 3 years experience in computer-assisted aircraft and/or remote sensing data display and analysis. Strong candidates will have M.S. degree in atmospheric sciences or related fields of physical science with extensive related experience will also be considered and are encouraged to apply. The salary will be attractive and is negotiable, full benefit package is included. Send letter of application, a complete resume stating particulars of education and experience, and names, addresses, and telephone numbers of three individuals who can comment knowledgeably about your capabilities, postmarked by April 1, 1983, to: Mrs. Harrison, Personnel Office, Desert Research Institute, University of Nevada System, P.O. Box 80020, Reno, Nevada 89506. An Affirmative Action/Equal Opportunity Employer.

Isotope Geologist/University of Wyoming. The Department of Geology/Geophysics invites applications for a tenure track position at the assistant professor level in isotope geology. The applicant's field of specialty may be stable or radiogenic isotopes. The successful candidate will be expected to teach undergraduate and graduate courses and conduct his/her own research program. Current research at the University of Wyoming includes: crustal evolution in the Andean and Proterozoic; the systematics of magma contamination; tectonic evolution of compressional and extensional belts. We hope the successful candidate will complement these studies as well as develop a strong, independent program. Applicants should research interests, and names of three references to: Dr. Robert N. Houston, Head, Dept. of Geology/Geophysics, P.O. Box 3000, University Station, University of Wyoming, Laramie, WY 82071. Closing date for applications is February 28, 1983. The University of Wyoming is an equal opportunity/affirmative action employer.

Upper Ocean Physical Modeler. A postdoctoral position in upper ocean equatorial modeling supported by NSF is available in the Menzies Air-Sea Minimum salary is \$21,000/yr. Qualified Ph.D. should send vita and names of 3 references to: Professor James I. Garreaud, The Florida State University, Tallahassee, FL 32306, or call (904) 644-1581.

Virginia Polytechnic Institute and State University/Structural Geologist. The Department of Geological Sciences invites applications for a tenure-track position in Structural Geology at the Assistant Professor level. The position involves teaching at the graduate and undergraduate level and supervision of graduate student research. Candidates should be prepared to enter research in potential areas. A Ph.D. and strong research potential are required. Closing date for applications is April 15. The position is available from September 1, 1983.

To apply send a vita with list of publications, summary of present and proposed research, and names of three references to: Kenneth A. Eriksson, Chairman of Search Committee, Department of Geological Sciences, VPI & SU, Blacksburg, VA 24061. An Affirmative Action/Equal Opportunity Employer.

Assistant Research Geologist. Scripps Institution of Oceanography has a position available for research in various fields of geochronology including sampling of submarine hydrothermal vent systems in the ocean, field work in volcanic gas vents on land, field work on the Greenland ice cap drilling and sampling ice cores, and laboratory work on isotopic and chemical studies of gases. The starting salary is \$22,900; starting date is April 1983. An excellent two-year appointment is envisaged. Required qualifications: M.S. in geology or related field, experience in high-temperature fumarole sampling, experience with isotope studies, high vacuum techniques, and a Ph.D. in geology and/or geochemistry. Send resume and vita references to: H. Craig, Geological Research Division, A-200, Scripps Institution of Oceanography, La Jolla, California 92038, by April 1, 1983. Note: Material sent to Scripps after March 1 should be addressed to: Ms. Lynne Moore or the above address or to H. Craig, R/V NEI, P.O. Box 165, San Diego, CA 92161.

Faculty Position in Solid Earth Geophysics. The Department of Geological Sciences at the University of California, San Diego, is seeking a faculty position in Solid Earth Geophysics. Consideration will be given to candidates in earth sciences, geophysics, and related fields. The successful candidate will be expected to develop a vigorous research program and to contribute to the Department's research in Geophysics. Preference will be given to candidates with strong backgrounds in quantitative methods of analyzing geophysical data. Qualified candidates should submit their curriculum vitae and names of three references to: Prof. A. B. Watts, Chairman, Department of Geological Sciences, University of California, San Diego, La Jolla, CA 92037, by April 15, 1983. The University of California is an equal opportunity/affirmative action employer.

Postdoctoral Position in Dynamical Meteorology. The Department of Atmospheric Sciences at the University of Washington announces a research position for work on problems of large-scale dynamics and transport in the stratosphere and mesosphere. The successful applicant should have demonstrated ability in diagnostic studies of atmospheric circulation and in dynamical theory and modeling. Postdoctoral fellowships are available for up to three years and begins about July 1, 1983. Candidates should send curriculum vitae and three letters of reference to: Prof. Conway B. Leovy, Department of Atmospheric Sciences AR-40, University of Washington, Seattle, WA 98195. For information, phone 206-545-4992. The University of Washington is an affirmative action/equal opportunity employer.

Postdoctoral Fellowship, Igneous Petrology/University of New Mexico. The Institute of Meteorology and Geophysics has an opening for a post-doctoral fellow in igneous petrology, to work on lunar samples. Main thrust of the research will be directed towards petrogenesis of brecciated and with other lunar samples. Close interaction with lunar samples and meteorites is expected. Experience in electron microprobe analysis or neutron activation analysis desirable but not essential. Position is initially for 1 year, with possibility of extension available on or about July 1, 1983. Appointment returns, list of publications and 3 letters of reference by May 1, 1983 to: R. Kell, Director, Institute of Meteorology and Geophysics, Department of Geology, University of New Mexico, Albuquerque, N.M. 87131. The University of New Mexico is an equal opportunity affirmative action employer.

Faculty Positions/Drexel University. The Department of Physics and Atmospheric Science has several openings for both visiting and tenure track faculty at all levels starting in the fall of 1983. Applicants must have strong teaching and research interests in one or more of three areas in the Department: Atmospheric Science—mesometeorology, synoptic meteorology, and remote sensing of the atmosphere; EXPERIMENTAL PHYSICS—highly viscous, quantum optics, nuclear and solid state physics; THEORETICAL PHYSICS—quantum, molecular and dynamics. Interested persons should send resumes and the names, addresses, and telephone numbers of three references to: Dr. Harman Newstein, Acting Head, Department of Physics and Atmospheric Science, Drexel University, Philadelphia, PA 19104 (215) 895-2707. Drexel University is an equal opportunity and affirmative action employer.

Faculty Position/Department of Geology, University of Illinois at Urbana-Champaign. Applications are solicited for a tenure track assistant professor position in experimental rock physics. The position is expected to be filled by August 1983. Salary is dependent upon experience. We are seeking a creative individual who is interested in either fundamental or applied research in rock physics and/or fluid behavior of rocks and their geophysical applications. An earned Ph.D. is required. The Department of Geology, the Materials Research Laboratory, and the Engineering College of the University are excellent environments for research in rock physics studies. For equal consideration, interested individuals should send curriculum vitae, list of publications, research interests and the names of three or more references by March 5, 1983 to: Albert T. Hsu, Department of Geology, University of Illinois at Urbana-Champaign, 1801 West Green Street, Urbana, Illinois 61801 (312) 555-7732. The University of Illinois is an equal opportunity/affirmative action employer.

Faculty Positions/The University of Iowa. The Department of Physics and Astronomy anticipates several openings for tenure-track assistant professors or visiting professors of any rank in August 1983. Preference will be given to experimentalists in any area for the tenure-track position. Current research interests include astronomy, atomic, molecular, and space physics. The positions involve undergraduate and graduate teaching, guidance of research students, and personal research. Interested persons should send a resume and a statement of research interest to: Search Committee, Department of Physics and Astronomy, The University of Iowa, Iowa City, IA 52242. The University of Iowa is an equal opportunity/affirmative action employer.

Geophysical Sciences. Applications invited for a possible tenure track position at the Assistant Professor (or near completion) is required. Doctoral candidates are expected to teach undergraduate and graduate courses in structural geology/geomorphology and to develop a research program in any of the following areas: 1) faculty, 150 undergraduate majors, and 50 graduate students. Salary open to negotiation. A brief description of research interests, a list of publications, and 3 letters of reference by June 30, 1983 to: Dr. Randall S. Stein, Chairman, Department of Geophysical Sciences, Old Dominion University, Norfolk, Virginia 23506-0512. An Affirmative Action/Equal Opportunity Employer.

Postdoctoral Research Associate Position/Johns Hopkins University. Applied Physics Laboratory has several openings for postdoctoral research associates in the analysis and interpretation of data obtained from deep space probes (Voyager, or Pioneer, or other), and in the analysis and interpretation of data obtained from deep space probes (Voyager, or Pioneer, or other), and in the analysis and interpretation of data obtained from deep space probes (Voyager, or Pioneer, or other). Applications should be addressed to: Mr. Susan F. Sayre, Department IEN 238, The Johns Hopkins University, Applied Physics Laboratory, Johns Hopkins Road, Laurel, MD 20707. An Equal Opportunity Employer M/F.

University of Nebraska-Lincoln/Geology. Seek tenure-track Assistant Professor in general area of tectonics, geophysics, structure and tectonics, and/or related fields. Teaching duties will be assigned to reflect specialty of successful applicant. Initial tenures per semester. Resumes and letters of recommendation should be sent to: Dr. J. L. Johnson, Lincoln, Nebraska 68583-0340. Affirmative Action/Equal Opportunity Employer.

Postdoctoral Position in Space Plasma Physics. Dartmouth College invites applications for a one-year postdoctoral fellowship which will become available in June 1983. The recipient is expected to develop theoretical models of magnetospheric current sheets and boundary layers and to study current processes such as low-frequency magnetic reconnection which occur in such layers. Send letter of application, resume, and the names of two references by April 15 to Professor B. Sonnerup, Thayer School of Engineering, Dartmouth College, Hanover, New Hampshire 03755 (603) 686-2883. Dartmouth College is an equal opportunity/affirmative action employer.

Without Advertising a Terrible Thing Happens. NOTHING! Advertising space reservations for the '83 AGU Spring Meeting Abstract Issue of EOS are now being accepted.

Reach the decision makers in the earth, ocean, atmospheric and space sciences. This special issue, in journal format, will feature the abstracts of papers presented at the meeting plus new articles, and editorials.

For the greatest exposure of your work, reserve your advertising space today. Reservation deadline: March 28, 1983.

For rates and additional information, call toll free: 800-424-2488 (In the Washington area 482-6903).

Physical Oceanographer/Computer Programmer. The Florida State University is seeking applicants to help carry out advanced research that involves numerical modeling and time series analysis. Candidates should have an M.S. in physical oceanography or computer science and experience with principles of ocean circulation modeling and oceanographic data processing. Experience on CDC mainframes plus Fortran IV is particularly desirable. Position available to start immediately. Rank is Research Assistant. Salary will be competitive according to training and experience. Send resume and professional references by March 28, 1983 to: Hueb, Department of Oceanography, Florida State University. An affirmative action/equal opportunity employer.

STUDENT OPPORTUNITIES

Congressional Science Fellowship/AGU. Opportunity for a one-year assignment on the staff of a congressional committee or a House or Senate member as an advisor on a wide range of scientific issues affecting public policy questions. Individuals who are AGU members and U.S. residents are invited to apply. A broad background in science is expected, as the various duties enable and require the applicant to be articulate, literate, flexible, and able to work well with people from diverse professional backgrounds. Public policy background is not required although such experience and/or demonstrable interest in applying science to the solution of public problems is desirable. The fellowship carries with it a stipend of up to \$27,000 plus travel allowances.

How to apply: Candidates should submit a letter of intent, a curriculum vitae, and three letters of recommendation. The letter of intent should include a statement of what issues and congressional situations interest you, what role you envision as a congressional science fellow, and what outcome you hope for in relation to career goals. The individual item when you request letters of recommendation should include other aspects of your background that make you particularly qualified to serve as a Congressional Science Fellow. Send the above to: Department MP, Congressional Science Fellowship Program, American Geophysical Union, 2000 Florida Avenue, N.W., Washington, D.C. 20009. Application Deadline: March 31, 1983.

Graduate Scholarships in Geophysics/University of Wyoming. M.S. and Ph.D. levels. Up to \$10,500/year plus tuition. Research support. Research and Teaching Assistantships. \$3,500-7,000/academic year. \$2,500 summer stipend. Hill Fellowships. Variable amounts. Areas of geographical research in Wyoming: Reflection seismology. Gravity and magnetic potential field studies.

Physical properties
Paleomagnetism and rock magnetism
Thermal processes
Crustal structure and magnetism
Tectonic modeling
Seismic data processing
Contact: Dr. Kevin R. Furlong
Department of Geology/Geophysics
University of Wyoming
P.O. Box 3000, Univ. Station
Laramie, WY 82071
307/766-1779.

Graduate Fellowships in Coastal and Continental Shelf Sedimentation. The Geological Department of Dalhousie University invites applications for graduate fellowships leading to M.Sc. and Ph.D. degrees with specialization in the field of coastal and continental shelf sedimentation. Potential research areas include shoreline and sediment processes, instrumentation for sediment transport studies and construction of coastal facies models. Opportunities exist to take part in the upcoming Canadian Coastal Sediment Study and to gain scientific cruise experience on research vessels from Bedford Institute of Oceanography. Awards cover a calendar year stipend and are valued after fees are deducted, between \$6500-\$8000. For further information or application please write:

Dr. R. Boyd
Geology Department
Dalhousie University
Halifax, Nova Scotia
CANADA B8H 4S5.

SERVICES, SUPPLIES, COURSES, AND ANNOUNCEMENTS

FIFTH CONFERENCE ON THE PHYSICS OF THE JOVIAN AND SATURNIAN MAGNETOSPHERES

Cambridge, Massachusetts
June 21-24, 1983

Sessions on satellite effects on the magnetosphere, interaction of the magnetosphere with rings, dust, and satellite surfaces, radio and plasma wave emission in relation to particle and field structure, energetic particles, magnetospheric configuration, dynamics, and energy budget. Invited and Contributed Papers. Abstract Deadline: March 15, 1983. Further information: Jupiter/Saturn Conference c/o Prof. H. B. G. Bridge, 37-24 Massachusetts Institute of Technology, Cambridge, MA, 02138, (617) 253-7601.

Ahoy!

2 weeks
March 9
Abstract Deadline
for the
1983 AGU
SPRING MEETING
May 30-June 3

Contact: AGU Meetings
2000 Florida Avenue, N.W.
Washington, D.C. 20009

(202) 462-6903 D.C. area
(toll free) 800 424-2488

Call for papers published in EOS,
November 30, 1982
and January 18, 1983.

Call Back into Baltimore

The June Bacon-Berkey Scholarship In Atmospheric Sciences for Women 1983-1984

Expressly for women intending to make a career in the atmospheric sciences. This monetary assistance, provided through a gift from June Bacon-Berkey, a noted meteorologist, will be given to a woman who shows academic achievement and promise. To qualify, candidates must be one of the following:
• a first-year graduate student in an advanced degree program in atmospheric sciences;
• an undergraduate in a bachelor's degree program in atmospheric sciences who has been accepted for graduate study;
• a student at a 2-year institution offering at least six semester hours of atmospheric sciences, who has been accepted for a bachelor's degree program, and who has completed all of the courses in atmospheric science offered of the 2-year institution.

Awardee selection will be made by the AGU Subcommittee on Women in Geophysics in consultation with the AGU Atmospheric Sciences Section.

For application forms contact:
American Geophysical Union
Member Programs Division
2000 Florida Avenue, N.W.
Washington, D.C. 20009

462-6903
800-424-2488 outside the Washington, D.C. area
Application Deadline
May 1, 1983

The Climatic Effects of Volcanic Dust and Aerosols in the Upper Atmosphere

Friday, March 18, 1983
8:30 a.m.-5:00 p.m.
National Bureau of Standards Auditorium
325 Broadway, Boulder, Colorado

Sponsored by the AGU
Front Range Branch
Cosponsored by the
Denver/Boulder Chapter,
American Meteorological Society

This symposium will bring together prominent researchers in the fields of climatology, meteorology, glaciology and volcanology to summarize the state of knowledge on this subject in an interdisciplinary forum at a level appropriate for a non-specialized, but scientifically literate audience. The meeting is open to the public.

Topics will include:
• The history and causes of climatic variations
• Explosive volcanism
• Atmospheric effects and observations
• Climatic and cultural consequences.

Contacts: Jules Friedman and Raymond Waits
U.S. Geological Survey, P.O. Box 25025
MSO Stop 964, Denver, CO 80225
(303) 234-3676 (Friedman) or 234-3493 (Waits).
For further information, see AGU Meetings Section, February 15, 1983.

American Geophysical Union 1983 Budget—Income and Expense by Activity			
	Income	Expense	Net
Publications division			
Journal of Geophysical Research	3820	1830	990
Water Resources Research	421	302	124
Reviews of Geophysics and Space Physics	412	308	104
Geophysical Research Letters	278	181	97
Radio Science	244	161	83
Tectonics	62	32	10
Eos	522	513	9
Chinese Geophysics Series	29	26	3
Russian translations	603	494	109
Books	419	288	131
Other publication services	107	80	27
Publications division overhead	8	44	(44)
Total	5930	4682	1248
Member Programs division			
Membership services	64	63	1
Spring Meeting	153	98	60
Fall Meeting	220	115	105
Other meetings	50	29	27
Public Affairs	—	51	(51)
Education & Human Resources	—	17	(17)
Awards	—	7	(7)
Associated societies	36	24	12
Other Member Programs activities	66	67	(1)
Member Programs division overhead	—	76	(76)
Total	595	543	52
Miscellaneous projects	75	55	20
General & Administrative			
Administrative Division	—	573	(573)
Finance Division	75	201	(126)
Executive Office	—	419	(419)
Total	75	1193	(1118)
Total operations	6675	6473	202
Investments			
Building and land	271	326	(55)
Fund raising	250	15	235
Other investments	70	7	63
Total	591	348	243
Total all activities	7266	6821	445
In thousands of dollars.			
The line items showing overhead in the Publications and Member Programs divisions represent division-wide administrative expenses that cannot be easily assigned to individual projects within the division. The expenses shown in the General and Administrative category represent organization-wide overhead such as personnel, accounting, occupancy of space, and executive staff time.			

